

SUMMARY

This chapter is an executive summary of the Program Environmental Impact Report (EIR) for the implementation of the City of Carlsbad's Sewer Master Plan and the Carlsbad Municipal Water District's (CMWD) Water and Recycled Water Master Plans (Master Plans), prepared in compliance with the California Environmental Quality Act (CEQA). This chapter highlights the major areas of importance in the environmental analysis for the Master Plans, as required by CEQA Guidelines Section 15123. It provides a brief description of the Master Plans, project objectives, and alternatives to the Master Plans. In addition, this chapter provides tables summarizing: 1) the direct and cumulative impacts that would occur from implementation of the Master Plans; 2) the level of impact significance before mitigation; 3) the recommended mitigation measures that would avoid or reduce significant environmental impacts; and 4) the level of impact significance after mitigation measures are implemented.

Overview

As required by CEQA, this EIR: 1) assesses the potentially significant direct, indirect, and cumulative environmental effects of the Master Plans; 2) identifies potential feasible means of avoiding or substantially lessening significant adverse impacts; and 3) evaluates a range of reasonable alternatives to the Master Plans, including the required No Project Alternative. The City of Carlsbad (City) is the "Lead Agency" for this Program EIR for the implementation of the Master Plans. The City has the principal responsibility for certifying the EIR and approving the Sewer Master Plan. The CMWD is a "Responsible Agency" and has discretionary authority over the Water and Recycled Water Master Plans.

Pursuant to CEQA Guidelines, this EIR evaluates the effects of all of the capital improvement program (CIP) projects included in the Master Plans at a program level. This EIR will be used by the City and the CMWD to evaluate the environmental implications of adopting the Master Plans. Once certified, this EIR would also be used to tier subsequent environmental analyses for future development of the proposed CIP projects.

Project Description

The proposed project is the update of the City of Carlsbad's Sewer Master Plan, and the CMWD's Water and Recycled Water Master Plans. The Master Plans identify the CIP projects needed to meet current and future demand through buildout of the service areas in 2035. The EIR addresses the potential physical environmental impacts that would result from construction of the CIP projects.

SUMMARY

The intent of the Sewer Master Plan is to provide adequate sewer (wastewater) service for Carlsbad through buildout of the City of Carlsbad's wastewater service area, which is anticipated to occur in 2035. Future wastewater flows are projected to increase by approximately 2.1 million gallons per day (mgd), or 27 percent, at buildout for a total ultimate average dry weather wastewater flow of 10 mgd. The proposed CIP includes the installation of new sewer pipelines (14 CIP projects), rehabilitation of existing sewer pipelines (13 CIP projects), lift station removals (2 CIP projects), lift station repairs and improvements (5 CIP projects), collection system capacity projects (5 CIP projects), interceptor capacity projects (6 CIP projects), new access road projects (3 CIP projects), and 2 CIP projects for the Encina Water Pollution Control Facility (EWPCF).

The Water Master Plan Update includes a capacity evaluation to meet future demands and recommended CIP projects for continued reliable water service through buildout in accordance to the Carlsbad Growth Management Plan. Potable water demand is anticipated to increase 9 percent from 19.1 mgd in 2007 to 20.8 mgd in 2035. The water supply and transmission CIP projects would expand and diversify the CMWD water supply. Proposed CIP projects include water supply projects (2 CIP projects); water pipeline installations and improvements, including a potential connection to a proposed seawater desalination project (28 CIP projects); storage facility repairs and improvements (7 CIP projects); pump station improvements (5 CIP projects), groundwater projects (2 CIP projects), and 8 CIP projects for miscellaneous repairs and improvements.

The Recycled Water Master Plan update guides the continued development of the CMWD recycled water system. Recycled water use will increase as the distribution system is expanded into future development areas and from conversion of existing potable water customers inside and outside the CMWD service area to the recycled water system. If all potential demands within CMWD are connected, CMWD would be expected to meet a recycled water use goal of approximately 27 percent of total water use by the year 2020. Future demand would potentially exceed the CMWD's recycled water allocation; therefore, new supply sources would be required to expand the recycled water system. The proposed CIP projects include the expansion and installation of new recycled water pipeline segments (69 CIP projects), storage facility improvements (3 CIP projects), and two CIP projects that would increase the capacity of the Carlsbad Water Recycling Facility (CWRF).

Master Plan Goals and Objectives

Sewer Master Plan

The objectives of the Sewer Master Plan are to:

- Perform capacity analyses of the existing and future sewer collection system
- Recommend a long-term CIP for improvement of existing wastewater collection and treatment facilities to meet future demand

Water Master Plan

The objective of the Water Master Plan is to provide water service for the CMWD through buildout of the service area, which is anticipated to occur in 2035. The CMWD proposes to implement the Water Master Plan to:

- Address current water supply issues
- Evaluate and meet future demands

- Recommend CIP projects for continued reliable water service through service area buildout in accordance with the Carlsbad Growth Management Plan

Recycled Water Master Plan

The intent of the update to the Recycled Water Master Plan is to guide the CMWD as it develops and expands the current recycled water distribution system to build out, which is anticipated to occur in 2035. CMWD wants to maximize the use of recycled water because it is potentially the lowest cost water supply source for future water demand. Specifically, CMWD proposes to implement the Recycled Water Master Plan to:

- Maximize recycled water use in and around CMWD
- Find cost effective system expansion opportunities
- Optimize the existing and future system configuration
- Identify CIP projects to meet future demand for recycled water

Impact Summary

This EIR examines the potential environmental effects from implementation of the Master Plans, including information related to existing site conditions, analyses of the types and magnitude of individual and cumulative environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts. In accordance with Appendix G of the CEQA Guidelines, the potential environmental effects of the Master Plans are analyzed for the following areas:

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| ■ Aesthetics | ■ Greenhouse Gas Emissions |
| ■ Air Quality | ■ Hazards and Hazardous Materials |
| ■ Biological Resources | ■ Hydrology and Water Quality |
| ■ Cultural Resources | ■ Land Use and Planning |
| ■ Energy | ■ Noise |
| ■ Geology, Soils, and Paleontological Resources | ■ Transportation/Traffic |

Table S-1 lists the CIP projects that have been addressed in previously completed CEQA documents and are not included in this analysis, with the exception of the energy and greenhouse gas emissions analyses. These documents are discussed in greater detail in Chapter 4, Environmental Analysis. Table S-2 lists the CIP projects that would result in less than significant impacts and would not require mitigation, as determined in the environmental analysis in Section 4.1 through 4.12. Tables S-3, S-4, and S-5, presented at the end of this chapter, provide summaries of the environmental impacts that could result from implementation of the Master Plans and feasible mitigation measures that could reduce or avoid environmental impacts. Tables S-4 and S-5 identify the significance of the impact before mitigation, applicable mitigation measures, and the level of significance of the impact after the implementation of the mitigation measures.

Impacts to agricultural and forest resources, mineral resources, population and housing, public services, recreation, and utilities and services are considered to be “Effects Found Not to be Significant,” according to Section 15128 of the CEQA Guidelines. These issues are discussed further in Chapter 5 (Other CEQA Considerations) of this EIR.

Table S-1 CIP Projects That Are Included in Prior Environmental Documentation

Master Plan Project	Prior CEQA Document
Sewer CIP Projects	
SR-6, N-5, and N-8	Final EIR for the Robertson Ranch Master Plan (EIR 03-03, SCH #2004051039)
SR-10	Notice of Exemption – EA 10-10 – Terramar Lift Station and Force Main Replacement
SR-25	Notice of Exemption – CDP 11-07/CUP 11-02 – Home Plant Lift Station and Force Main Replacement
N-1 and N-2	Final EIR for the Cantarini/ Holly Spring Developments (EIR 02-02, SCH #2002101081)
N-7	Final EIR for the Dos Colinas Project (EIR 09-01, SCH # 2009111085)
N-10	Ponto Beachfront Village Vision Plan Final EIR (EIR 05-05, SCH #2007031141)
N-11	Calavera Hills Master Plan Phase II, Bridge and Thoroughfare District No. 4, & Detention Basins Final EIR (EIR 98-02, SCH #99111082)
I-3, I-4, I-5	Agua Hedionda Sewer Lift Station & Gravity & Force Mains MND (SCH #2010081053)
I-6	Buena Vista Lift Station Sewer Force Main (VC-4) MND (SCH #2009021085)
Water CIP Projects	
40	Final EIR for the Robertson Ranch Master Plan (EIR 03-03, SCH #2004051039)
7 and 8	Calavera Hills Master Plan Phase II, Bridge and Thoroughfare District No. 4, & Detention Basins Final EIR (EIR 98-02, SCH #99111082)
R6	Notice of Exemption – CMWD Project No. 5025 – Maerkle Reservoir Pressure Control Hydroelectric Facility
Recycled Water CIP Projects	
ES 3 (P12, P13, and P15)	Calavera Hills Master Plan Phase II, Bridge and Thoroughfare District No. 4, & Detention Basins Final EIR (EIR 98-02, SCH #99111082)

Table S-2 CIP Projects That Would Result in Less Than Significant Impacts and Would Not Require Mitigation

Reference Number	Project	Component
Sewer Master Plan Projects		
SR-1	Sewer Pipeline Projects	5514 Leucadia Trunk Sewer Rehabilitation Project
SR-2	Sewer Pipeline Projects	5517 North Batiquitos Lift Station
SR-4	Sewer Pipeline Projects	5513 Condition Assessment of Sewer Pipelines
SR-5	Sewer Pipeline Projects	5519 Flow Meter Replacement
SR-7	Sewer Pipeline Projects	5520 Odor and Corrosion Prevention Assessment
SR-8	Sewer Pipeline Projects	3840 Sewer Lift Station Repairs and Upgrades
SR-13	Sewer Pipeline Projects	5524 Tamarack Sewer Relocation
SR-16	Sewer Pipeline Projects	Foxes Landing Lift Station Forcemain Rehabilitation
SR-18	Sewer Pipeline Projects	Terramar Collector Sewer Replacement (El Abrol Drive and Los Robles Drive)
SR-20	Sewer Pipeline Projects	North Batiquitos Lift Station Forcemain Rehabilitation
SR-21	Sewer Pipeline Projects	Crest Drive Sewer Extension
SR-24	Sewer Pipeline Projects	Buena Interceptor Sewer Realignment (East End)
N-4	Sewer Collection Pipeline Projects	Las Flores Sewer Extension

Table S-2 CIP Projects That Would Result in Less Than Significant Impacts and Would Not Require Mitigation (continued)

Reference Number	Project	Component
N-6	Sewer Collection Pipeline Projects	Terramar Sewer Extension
C-1	Sewer Collection System	Poinsettia Lane Sewer Replacement
C-2	Sewer Collection System	Marron Road Sewer Replacement
C-3	Sewer Collection System	Las Palmas Trunk Sewer
C-4	Sewer Collection System	Faraday and El Camino Real (Orion to PAR) Sewer Pipeline Replacement
C-5	Sewer Collection System	5504 Sewer Monitoring Program
I-2	Interceptor Capacity	Vista/Carlsbad Interceptor - Buena Vista Lift Station Improvements
E-1	EWPCF Projects	
E-2	EWPCF Projects	
Vancouver Lift Station	Sewer Lift Station	Removal (see CIP SR-14)
Water Master Plan Projects		
2	Zone 241 Water Transmission Pipeline	Parallel pipeline in Crestview Drive
19	Zone 550 Water Transmission Pipeline	Install pipeline in Aviara Parkway
22	Zone 318 Water Transmission Pipeline	Install pipeline in Carlsbad Boulevard
25	Zone 375 Water Transmission Pipeline	Install pipeline in Poinsettia Lane
34	Zone 255 Water Project	Replace valves, pipe, and meter for Oceanside Intertie at ECR/SH78.
38	Water Project	Design and construct pipeline corrosion control improvements at multiple locations
39	Zone 241 Water	Install new PRS or pipeline in Kelly Ranch Village "E"
41	Water Project	Repair/replace broken valves at various locations.
43	Zone 241 Water Transmission Pipeline	Replace pipeline and repair roadway/ sidewalk of Park Drive
44	Water Project	Assess, repair, or upgrade five PRSs.
45	Water Project	Construct four new interties
46	Water Project	Connection #1 PRS, install hydroelectric turbines
49	Water Supply/ Transmission Project	Install SDCWA #5 connection and pipeline
50	Water Transmission Pipeline	Install pipeline to La Costa Hi Tank
51	Groundwater Projects	Construct Rancho Carlsbad well water supply facilities
52	Groundwater Projects	Construct new facilities to produce, treat, and deliver groundwater to CMWD from the Mission Basin of the San Luis Rey River
54	Water Transmission Pipeline	Remove/replace pipeline in easements and relocate meters in multiple locations
56	Water Transmission Pipeline	Miscellaneous pipeline replacement projects
F1	Zone 330 Water Transmission Pipeline	Replace pipeline in Jeanne Place
F2	Zone 446 Water Transmission Pipeline	Replace pipeline in Nob Hill Drive
F5	Zone 255 Water Transmission Pipeline	Replace pipeline in Cynthia Lane and Gregory Drive
F6	Zone 330 Water Transmission Pipeline	Replace pipeline in Tamarack Avenue
F7	Zone 330 Water Transmission Pipeline	Replace pipeline in Highland Drive

Table S-2 CIP Projects That Would Result in Less Than Significant Impacts and Would Not Require Mitigation (continued)

Reference Number	Project	Component
F8	Zone 580 Water Transmission Pipeline	Provide a new fire hydrant connection
F9	Zone 330 Water Transmission Pipeline	Replace pipeline in Chestnut Avenue
F10	Zone 241 Water Transmission Pipeline	Replace pipeline in Garfield Street
F11	Zone 330 Water Transmission Pipeline	Replace pipeline in Arland Road
F12	Zone 330 Water Transmission Pipeline	Install pipeline in Highland Drive
F14	Zone 680 Water Pump Station Project	Construct emergency pump station at Obelisco Place/Circle
F15	Zone 255 Water Transmission Pipeline	Replace pipeline in Palm Avenue, install pipeline to cross Interstate 5.
PS1	Zone 580 Water Pump Station Project	Install standby generator, hydropneumatic tank, and jockey pump at Calavera pump station
PS2	Zone 446 Water Pump Station Project	Remove Ellery pump station, construct facilities for a portable pump station and portable pump
PS3	Zone 330 Water Pump Station Project	Remove Buena Vista pump station and forebay tank
PS4	Zone 490 Water Pump Station Project	Add additional pump to increase capacity at Maerkle pump station
R1	Zone 700 Water Storage Project	Santa Fe II drainage system and crib wall repairs
R2	Water Storage Project	New exterior/interior coating and miscellaneous appurtenance repairs/replacement
R4	Water Storage Project	Miscellaneous concrete reservoir upgrades at multiple locations, repaving access roads.
R7	Zone 490 Water Storage Project	Miscellaneous facility improvements at Maerkle Reservoir
R8	Water Storage Project	Replaced outlet tower valves and piping at Lake Calavera, re-grade reservoir bottom
Recycled Water Master Plan Projects		
ES4A (P16, P17, P18)	Recycled Water Expansion Segment 4A: Shadowridge	
ES4B (P19, P20, P21, P22, P23, P24)	Recycled Water Expansion Segment 4B: VID and Oceanside	
ES4C (P25, P26, P27, P28, P29)	Recycled Water Expansion Segment 4C: VID Business Park	
ES6 (P35, P37)	Recycled Water Expansion Segment 6	
ES10 (P44, P45)	Recycled Water Expansion Segment 10: Melrose Business Park	
ES12 (P51, P52, P53, P54)	Recycled Water Expansion Segment 12: Carlsbad Schools	
ES13 (P55, P56)	Recycled Water Expansion Segment 13: Paseo Del Norte	
ES15 (P61, P62, P63)	Expansion Segment 15: HOAs south of Aviara	
ES16 (P64, P65)	Expansion Segment 16: Pavoreal HOA	
P73	Recycled Water System Expansion Pipelines	Retrofit customers near existing system, install 30 meters
P74	Recycled Water System Expansion Pipelines Redundancy Looping	Install 4,200 feet of 12 inch diameter pipeline

Table S-2 CIP Projects That Would Result in Less Than Significant Impacts and Would Not Require Mitigation (continued)

Reference Number	Project	Component
P75	Recycled Water System Expansion Pipelines	Retrofit customers near existing system, install 17 meters
P76	Recycled Water Storage	C Tank Chlorination and Mixing System
P77	Recycled Water Storage	Utilize Twin D Tank Site in Zone 384 to store additional 2.0 MG, construct concrete ring wall, move “E” Tank, connect transmission main in Black Rail Road.
P78	Recycled Water System Expansion Pipeline to Santa Fe Tank I	Install 3,600 feet of 12 inch diameter pipeline
P79	Recycled Water Storage	Rehabilitate Santa Fe Tank I to store an additional 2.5 MG
P80	CWRF Recycled Water Supply	Install additional filtration units and chlorine contact basins for total capacity of 8 mgd to meet Phase III demand.
P81	CWRF Recycled Water Supply	Install additional filtration units and chlorine contact basins for a total capacity of 11 mgd to meet build-out demand.

Alternatives to the Project

The following alternatives are analyzed in detail in Chapter 6 (Alternatives) of this EIR. The objective of the alternatives analysis is to consider a reasonable range of potentially feasible alternatives to foster informed decision-making and public participation. The alternatives include:

- **No Project Alternative.** Under the “no project” alternative, the City of Carlsbad and CMWD would not adopt the Master Plans.
- **Reduced Footprint Alternative.** This alternative would reduce the footprint of implementation of the CIPs by eliminating CIP projects that would directly impact biological resources.

CEQA Guidelines Section 15126.6(e)(2) requires that an EIR identify the environmentally superior alternative among the range of reasonable alternatives that are evaluated. The No Project Alternative assumes that none of the proposed CIP projects would be constructed at this time, and would therefore avoid all potentially significant environmental impacts identified for the Master Plans. However, this alternative would not preclude implementation of some, if not all, of the CIP projects on an individual basis sometime in the future. Although future infrastructure projects would still be required to undergo individual environmental review, the impacts would be evaluated on a project-by-project basis and the potential cumulative impacts associated with all of the CIP projects within the Master Plans may not be addressed adequately. In other words, cumulative environmental impacts could potentially be addressed in “piece-meal” manner, which may result in under-estimating the total extent of cumulative environmental impacts in comparison to evaluating the entire Master Plans at the Program EIR level. In addition, this approach restricts the City’s and CMWD’s ability to properly plan for projected growth and to design infrastructure accordingly. So while new and upgraded infrastructure projects would still occur under this alternative, they would be implemented in a more disorganized, less efficient, and likely more costly manner. In addition, this alternative would not meet any of the objectives of the Master Plans.

CEQA Guidelines Section 15126.6(e)(2) also requires that an EIR identify another alternative as environmentally superior, besides the No Project Alternative. In this case, the next environmentally superior alternative would be the Reduced Footprint Alternative, which would reduce, but not

eliminate, potential impacts to biological resources, cultural resources, and paleontological resources. However, this alternative would only achieve one of the nine project objectives of the Master Plans, and would only partially meet three others. This alternative would not ensure that sewer, water, and recycled water facilities would be adequately sized for future sewer, water, and recycled water demand. Water demand and wastewater generation in the City and CMWD service areas will continue to grow regardless of the implementation of the Master Plans; therefore, this alternative would hinder the City and CMWD from being able to adequately provide service to accommodate future demand.

Areas of Known Controversy

To initiate the public scoping process for this EIR in accordance with CEQA, the City circulated a Notice of Preparation (NOP) on January 31, 2012. The 30-day public review period for the NOP ended March 1, 2012. Commenters on the NOP expressed concerns about potential impacts related to exposure to and remediation of contaminated soil and sensitive species and habitat. Additionally, a comment letter was received from the Native American Heritage Commission that requested that impacts on cultural resources be analyzed and appropriately mitigated, and provided a list of local Native American groups and organizations to contact regarding the presence or absence of cultural resources within the project area. These concerns have been identified as areas of known controversy and are analyzed in Chapter 4 (Environmental Analysis). Comment letters received in response to the NOP are included in Appendix A of this EIR.

Table S-3 CIP Projects That Would Require Measures to Mitigate Potentially Significant Impacts

Reference Number	Project Component	4.3 Biological Resources	4.4 Cultural and Paleontological Resources
Sewer Master Plan CIP Projects			
SR-3	Sewer Pipeline Projects – 5501 Buena Interceptor Sewer	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	No mitigation is required.
SR-9	Sewer Pipeline Projects – 3927 & 5503 Sewer Pipeline and Manhole Refurbishments and Replacements	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1)
SR-11	Sewer Pipeline Projects – Simsbury Sewer Lift Station Removal	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
SR-12	Sewer Pipeline Projects – 5523 Summerwind Place	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	Direct – Cultural Resources Investigation (Cul-1)
SR-14	Sewer Pipeline Projects – 5515 Vancouver Street HDD Sewer Pipeline	No mitigation is required.	Direct – Cultural Resources Investigation (Cul-1), Paleontological Resources Investigation (Pal-1)
SR-15	Sewer Pipeline Projects – Foxes Landing Lift Station Wetwell and Pump Replacement	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
SR-17	Sewer Pipeline Projects – Vista/Carlsbad Interceptor Sewer Reaches 1&2 Rehabilitation	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	No mitigation is required.
SR-19	Sewer Pipeline Projects – North Batiquitos Sewer Access Road Improvements	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1)

Table S-3 CIP Projects That Would Require Measures to Mitigate Potentially Significant Impacts (continued)

Reference Number	Project Component	4.3 Biological Resources	4.4 Cultural and Paleontological Resources
SR-22	Sewer Pipeline Projects – Sewer Easement Access Road	Direct/Indirect (Some segments) - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A) Some SR-22 segments would be less than significant without mitigation.	Direct (Some segments) – Cultural Resources Investigation (Cul-1), Paleontological Resources Investigation (Pal-1). Some SR-22 segments would be less than significant without mitigation.
SR-23	Sewer Pipeline Projects – Buena Interceptor Sewer Access Road Improvement (East of Costco)	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Direct – Cultural Resources Investigation (Cul-1), Paleontological Resources Investigation (Pal-1)
N-3	Sewer Collection Pipeline Projects – Mandana Property	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1)
N-9	Sewer Collection Pipeline Projects – Quarry Creek (Simsbury) Sewer Extension	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1), Paleontological Resources Investigation (Pal-1)
N-12	Sewer Collection Pipeline Projects – Palomar Commons/ Buena Sewer Realignment	No mitigation is required.	Direct – Paleontological Resources Investigation (Pal-1)
I-1	Interceptor Capacity – 3650 Vista/Carlsbad Interceptor (VC-3)	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	Direct – Paleontological Resources Investigation (Pal-1)
Water Master Plan CIP Projects			
48	Water Supply/Transmission Project – Replace or rehab TAP between SDCWA #3 and Maerkle Reservoir, and SDCWA #4 and 580 Zone	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	Direct – Cultural Resources Investigation (Cul-1), Paleontological Resources Investigation (Pal-1)
F3	Zone 446 Water Transmission Pipeline – Replace pipeline in Holly Brae Lane and Alder Avenue	No mitigation is required.	Direct – Paleontological Resources Investigation (Pal-1)

Table S-3 CIP Projects That Would Require Measures to Mitigate Potentially Significant Impacts (continued)

Reference Number	Project Component	4.3 Biological Resources	4.4 Cultural and Paleontological Resources
10	Zone 490 Water Transmission Pipeline – Install pipeline in easement across habitat management plan preserve	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1), Paleontological Resources Investigation (Pal-1)
17	Zone 375 Water Transmission Pipeline – Install pipeline in Poinsettia Lane	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1), Paleontological Resources Investigation (Pal-1)
21	Zone 700 Water Transmission Pipeline – Install pressure regulating station at El Fuerte Street/Corintia Street and pipeline in El Fuerte Street	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
47	Zone 700 Water Transmission Pipeline – Install pipeline to Santa Fe II Tank	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); CIP Project 47 California Gnatcatcher Surveys and Habitat Mitigation (Bio-1C); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects Outside of Carlsbad (Bio-2B)	Direct – Cultural Resources Investigation (Cul-1).
55	Zone 330 Water Transmission Pipeline – Install pipeline within Quarry Creek	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1).
R3	Water Storage Project – Replace floating cover for Maerkle Reservoir	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
R5	Zone 264 Water Storage Project – Remove or relocate “E” Tank	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
Recycled Water Master Plan CIP Projects			
ES1 (P01, P02, P03, P04)	Streets adjacent to Camino Vida Roble and Business Park along Palomar Oaks Way	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.

Table S-3 CIP Projects That Would Require Measures to Mitigate Potentially Significant Impacts (continued)

Reference Number	Project Component	4.3 Biological Resources	4.4 Cultural and Paleontological Resources
ES2 (P06, P07, P08, P09, P11)	Recycled Water Expansion Segment 2: Carlsbad Blvd and Cannon Road	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
ES5A (P30, P31, P32, P34)	Recycled Water Expansion Segment 5A: HOA along Tamarack and El Camino Country Club	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
ES7 (P38)	Recycled Water Expansion Segment 7: Quarry Creek	Direct/Indirect - Project-Level Biological Resource Surveys (Bio-1A); HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Avoidance of Nesting Birds and Raptors (Bio-1D); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); Habitat Compensation for Projects within Carlsbad (Bio-2A)	Direct – Cultural Resources Investigation (Cul-1)
ES8 (P39, P40)	Recycled Water Expansion Segment 8: La Costa Resort and OMWD	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
ES9 (P41, P42, P43)	Recycled Water Expansion Segment 9: Ponto Area	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
ES11 (P46, P47, P48, P49, P50)	Recycled Water Expansion Segment 11: Old Carlsbad along Carlsbad Blvd	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
ES14 (P57, P59, P60)	Expansion Segment 14: Frost Ave	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
ES17 (P66, P67, P68, P69)	Expansion Segment 17: HOAs south of La Costa	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.
ES18 (P70, P71)	Recycled Water Expansion Segment 18: Impala/Portion of Palmer	Indirect - Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction-Related Noise (Bio-1G); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I)	No mitigation is required.

Table S-4 Summary of Environmental Impacts and Mitigation Measures

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
4.1 Aesthetics				
Visual Character and Quality	Construction and operation of the CIP projects would not degrade the existing visual character of project sites and their surroundings.	LS	No mitigation is required.	LS
Scenic Vistas	The CIP projects would not have a substantial adverse effect on scenic vistas.	LS	No mitigation is required.	LS
Scenic Resources	The proposed CIP projects would not substantially damage scenic resources.	LS	No mitigation is required.	LS
Lighting and Glare	Lighting and glare associated with the project would not adversely affect day or nighttime views.	LS	No mitigation is required.	LS
4.2 Air Quality				
Consistency with Applicable Air Quality Plan	The Master Plans would not conflict with or obstruct implementation of the applicable air quality plan.	LS	No mitigation is required.	LS
Consistency with Air Quality Standards	Construction of proposed CIP projects would not result in emissions that would violate air quality standards.	LS	No mitigation is required.	LS
Sensitive Receptors	The Master Plans would not expose sensitive receptors to substantial pollutant concentrations.	LS	No mitigation is required.	LS
Objectionable Odors	The Master Plans would not create objectionable odors affecting a substantial number of people.	LS	No mitigation is required.	LS
4.3 Biological Resources				
Candidate, Sensitive, or Special Status Species	Implementation of the Sewer, Water, and Recycled Water Master Plans may result in direct and indirect impacts to sensitive plant and wildlife species.	PS	Bio-1A Project-Level Biological Resource Surveys. During the design phase and prior to the construction of CIP projects N-3, N-9, SR-3, SR-9, SR-17, SR-19, SR-22, SR-23, 10, 17, 47, 55, and ES7, the City and CMWD shall retain a qualified biologist to conduct project-level biological surveys. The surveys shall verify whether the project would occur on or in the immediate vicinity of natural habitat and habitat suitable for special status species. The surveys shall also identify if the project could result in direct or indirect impacts to natural habitat and special status species. The survey results shall be submitted to the City and CMWD to determine the need for further surveys and project-level analyses for subsequent CEQA documentation and the issuance of any discretionary actions or permits for the project.	

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>If the Quarry Creek Master Plan project covering CIP projects N-9, 55, and ES7 is ultimately approved and developed, the City and CMWD shall implement the specific mitigation requirements of the Quarry Creek Master Plan EIR (EIR 11-02) accordingly.</p> <p>Bio-1B HMP Covered Species Surveys and Habitat Mitigation. If it is demonstrated through the implementation of mitigation measure Bio-1A that CIP projects N-3, N-9, SR-3, SR-9, SR-17, SR-19, SR-22, SR-23, 10, 17, 55, or ES7 could directly or indirectly impact natural habitat that is suitable for special status species addressed within the Carlsbad HMP, the City and CMWD shall retain a qualified biologist to conduct focused, presence/absence surveys for rare plants and/or protocol-level surveys for special status wildlife species, as determined necessary for subsequent CEQA documentation and the issuance of any discretionary actions or permits for the project. Surveys shall follow protocols and guidelines approved by the USFWS, CDFG, and CNPS, and shall be conducted by qualified biologists permitted by the USFWS and/or CDFG, where applicable, and in accordance with the Carlsbad HMP and Carlsbad Municipal Code.</p> <p>The City and CMWD shall adhere to the HMP permit and general conditions pertaining to HMP habitat and covered species. Impacts to HMP covered species shall be avoided and minimized to the maximum extent practicable in conformance with the Carlsbad HMP and Carlsbad Municipal Code. Impacts to natural habitat shall be mitigated in accordance with mitigation measure Bio-2A.</p> <p>Bio-1C CIP Project 47 California Gnatcatcher Surveys and Habitat Mitigation. If it is demonstrated through the implementation of mitigation measure Bio-1A that CIP project 47 could directly or indirectly impact the federally threatened coastal California gnatcatcher, the City and CMWD shall implement the following mitigation measures, at minimum, and in addition to any avoidance, minimization, and conservation measures prescribed by the USFWS during consultation and/or permitting:</p> <ol style="list-style-type: none"> 1. Within one year prior to CIP project construction, the City and CMWD shall retain a permitted biologist to commence focused surveys in accordance with USFWS protocols to determine the presence or absence of the coastal California gnatcatcher. Documentation of the survey results will be provided to the City and CMWD, and USFWS, within 45 days of completing the final survey. 2. If the coastal California gnatcatcher could be directly or indirectly impacted then in compliance with FESA, and as stated in Section 2.6-1.1 of this EIR, the City and CMWD shall consult and obtain all applicable regulatory permits and authorizations from the USFWS, and the conditions of the regulatory permits and authorizations will be implemented accordingly and/or the CIP project would be modified to avoid direct “take” of the species and/or minimize adverse affects to the species and occupied habitat. 	LS

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>3. The City and CMWD shall mitigate the loss of habitat according to mitigation measure Bio-2A.</p> <p>Bio-1D Avoidance of Nesting Birds and Raptors. To prevent direct impacts to nesting birds, including raptors, protected under the federal MBTA and CFG Code, the City and CMWD shall enforce the following: Prior to removal or damage of any active nests or any tree pruning or removal operations during the prime nesting seasons, that being from March 15 to May 30, a certified biologist shall survey the trees to determine if there are any active nests within 500 feet of the area of tree removal or pruning. If any active nests are located within 500 feet, no tree pruning or removal operations can occur until the nests are vacated or until the end of the prime breeding season, whichever occurs later. In addition, prior to any tree removal or pruning operations proposed outside of the prime nesting season but within the period of January 15 to September 15, a confirmation is required from a certified biologist that no disturbance to active nests or nesting activities would occur. Documentation from a certified biologist consistent with these requirements shall be submitted to the City Planner for review and approval. A note to this effect shall be placed on the construction plans.</p> <p>Bio-1E Pre-Construction Biological Resource Surveys. Prior to construction of CIP projects or portions of projects that will occur within disturbed or developed land, but will be sited immediately adjacent to an undeveloped open space area (i.e., an area supporting naturalized habitat, sensitive habitat, and/or habitat potentially suitable for special status species), the City and CMWD shall retain a qualified biologist to perform a pre-construction survey to verify existing biological resources adjacent to the project construction areas. The City and CMWD shall provide the biologist with a copy of the CIP project plans that clearly depict the construction work limits, including construction staging and storage areas, in order to determine which specific portion(s) of the project will require inspection of adjacent open space areas during the pre-construction survey. At minimum, the biologist shall perform a visual inspection of the adjacent open space area in order to characterize the existing habitat types and determine the likelihood for special status species to occur, including the coastal California gnatcatcher, migratory songbirds, and other bird species with the potential to breed in the area. The pre-construction survey results shall be submitted to the City and CMWD prior to construction in order to verify the need for the additional construction measures proposed within Bio-1F through Bio-1I below.</p>	

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>Bio-1F Orange Construction Fencing. If it is confirmed through the implementation of mitigation measure Bio-1E that the CIP project would occur immediately adjacent to sensitive habitat areas and/or habitat potentially suitable for special status species, the City and CMWD shall retain a qualified biologist to supervise the installation of temporary orange construction fencing, which clearly delineates the edge of the approved limits of grading and clearing, and the edges of environmentally sensitive areas that occur beyond the approved limits. This fencing shall be installed prior to construction, and maintained for the duration of construction activity. Fencing shall be installed in a manner that does not impact habitats to be avoided. If work occurs beyond the fenced or demarcated limits of impact, all work shall cease until the problem has been remedied and mitigation identified. Temporary orange fencing shall be removed upon completion of construction of the project. Implementation of this measure shall be verified by the City prior to and concurrent with construction.</p> <p>Bio-1G Construction-Related Noise. Construction noise created during the general breeding season (January 15 to September 15) that could affect the breeding of the coastal California gnatcatcher, migratory songbirds, and other bird species associated with adjacent undeveloped areas shall be avoided. No loud construction noise (exceeding 60 dBA hourly average, adjusted for ambient noise levels, at the nesting site) may take place within 500 feet of active nesting sites during the general breeding season (January 15 through September 15).</p> <p>If it is confirmed through the implementation of mitigation measure Bio-1E that the CIP project could result in construction-related noise impacts to breeding birds during the general breeding season, the City and CMWD shall retain a qualified biologist to monitor the construction operations. The biological monitor shall be present to monitor construction activities that occur adjacent to the undeveloped open space area potentially supporting breeding birds. The monitor shall verify that construction noise levels do not exceed 60 dBA hourly average and shall have the ability to halt construction work, if necessary, and confer with the City, USFWS, and CDFG to ensure the proper implementation of additional protection measures during construction. The biologist shall report any violation to the USFWS and/or CDFG within 24 hours of its occurrence.</p> <p>Bio-1H Construction Staging Areas. If it is confirmed through the implementation of mitigation measure Bio-1E that the CIP project would occur immediately adjacent to sensitive habitat areas and/or habitat potentially suitable for special status species, the City and CMWD shall design final CIP project construction staging areas such that no staging areas shall be located within sensitive habitat areas. The construction contractor shall receive approval by the City Planning & Engineering Divisions prior to mobilizations and staging of equipment outside of the project boundaries.</p>	

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation																
			Bio-1I Contractor Training. If it is confirmed through the implementation of mitigation measure Bio-1E that the CIP project would occur immediately adjacent to sensitive habitat areas and/or habitat potentially suitable for special status species, the City and CMWD shall retain a qualified biologist to attend pre-construction meetings to inform construction crews of the sensitive resources and associated avoidance and/or minimization requirements.																	
Riparian Habitat and Other Sensitive Natural Communities	Implementation of the Master Plans has the potential to result in impacts to several upland, riparian, and wetland habitat types that are considered sensitive natural communities.	PS	<p>Bio-2A Habitat Compensation for Projects within Carlsbad. If it is demonstrated through the implementation of mitigation measure Bio-1A that CIP projects N-3, N-9, SR-3, SR-9, SR-17, SR-19, SR-22, SR-23, 10, 17, 55, or ES7 could directly impact sensitive natural communities, including Habitat Groups A, B, C, D, E, and F specified in Table 11 and Section D.6 of the Carlsbad HMP, the City and CMWD shall implement the following:</p> <p>1. Mitigation for unavoidable impacts to Habitat Groups A, B, C, D, E, and F shall be provided according to the ratios specified below and consistent with Table 11 and Section D.6 of the Carlsbad HMP:</p> <table><tr><th colspan="2">HMP Habitat Mitigation Ratios</th></tr><tr><th>Habitat Group and Type</th><th>Mitigation Ratio</th></tr><tr><td>A. Coastal salt marsh, alkali marsh, freshwater marsh, estuarine, salt pan/ mudflats, riparian forest, riparian woodland, riparian scrub, vernal pools, disturbed wetlands, flood channel, Engelmann oak woodland, coast live oak woodland</td><td>No net loss; mitigation varies by type of replacement habitat</td></tr><tr><td>B. Beach, southern coastal bluff scrub, maritime succulent scrub, southern maritime chaparral, native grassland</td><td>3:1</td></tr><tr><td>C. Coastal sage scrub occupied by coastal California gnatcatcher</td><td>2:1</td></tr><tr><td>D. Coastal sage scrub unoccupied by coastal California gnatcatcher, coastal sage/chaparral mix, chaparral (excluding southern maritime chaparral)</td><td>1:1</td></tr><tr><td>E. Non-native grassland</td><td>0.5:1</td></tr><tr><td>F. Disturbed lands, eucalyptus woodland, agriculture</td><td>0.01:1</td></tr></table> <p>2. Impacts to Habitat Groups D, E, and F shall be mitigated at the Lake Calavera City Mitigation Bank in accordance with Appendix B of the Carlsbad HMP for covered City projects that are eligible to mitigate impacts at the Lake Calavera City Mitigation Bank.</p> <p>3. Impacts to Habitat Groups A, B, and C shall be avoided to the maximum extent practicable through project-level siting during CIP project design and trenchless pipeline installation methods (e.g., jack and bore, horizontal directional drilling) during CIP project construction.</p>	HMP Habitat Mitigation Ratios		Habitat Group and Type	Mitigation Ratio	A. Coastal salt marsh, alkali marsh, freshwater marsh, estuarine, salt pan/ mudflats, riparian forest, riparian woodland, riparian scrub, vernal pools, disturbed wetlands, flood channel, Engelmann oak woodland, coast live oak woodland	No net loss; mitigation varies by type of replacement habitat	B. Beach, southern coastal bluff scrub, maritime succulent scrub, southern maritime chaparral, native grassland	3:1	C. Coastal sage scrub occupied by coastal California gnatcatcher	2:1	D. Coastal sage scrub unoccupied by coastal California gnatcatcher, coastal sage/chaparral mix, chaparral (excluding southern maritime chaparral)	1:1	E. Non-native grassland	0.5:1	F. Disturbed lands, eucalyptus woodland, agriculture	0.01:1	LS
HMP Habitat Mitigation Ratios																				
Habitat Group and Type	Mitigation Ratio																			
A. Coastal salt marsh, alkali marsh, freshwater marsh, estuarine, salt pan/ mudflats, riparian forest, riparian woodland, riparian scrub, vernal pools, disturbed wetlands, flood channel, Engelmann oak woodland, coast live oak woodland	No net loss; mitigation varies by type of replacement habitat																			
B. Beach, southern coastal bluff scrub, maritime succulent scrub, southern maritime chaparral, native grassland	3:1																			
C. Coastal sage scrub occupied by coastal California gnatcatcher	2:1																			
D. Coastal sage scrub unoccupied by coastal California gnatcatcher, coastal sage/chaparral mix, chaparral (excluding southern maritime chaparral)	1:1																			
E. Non-native grassland	0.5:1																			
F. Disturbed lands, eucalyptus woodland, agriculture	0.01:1																			

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>4. Unavoidable impacts to Habitat Groups A, B, and C shall be mitigated in-kind through implementation of any one or combination of the following measures, as approved and/or amended by the USFWS, USACE, RWQCB, and/or CDFG, if applicable:</p> <ul style="list-style-type: none"> a. On site as creation of new habitat within avoided and preserved areas at the CIP project site; b. On site as restoration of existing habitat within temporary impact areas and/or avoided and preserved areas at the CIP project site; c. On site as enhancement of existing habitat within avoided and preserved areas at the CIP project site; d. Off site as purchase of habitat credits within an approved mitigation bank(s) (e.g., Carlsbad Oaks Conservation Bank, North County Habitat Bank); e. Off site as habitat preservation, creation, restoration, and/or enhancement within other properties or approved mitigation programs available at the time of grading; or f. A combination of the above. g. In the Coastal Zone, impacts to Habitat Groups A, B, and C shall be mitigated in accordance with the ratios described in Section D.7 of the HMP and shall include at a minimum a 1:1 creation (or substantial restoration when allowed) component to ensure no net loss of habitat. The remainder of the mitigation obligation may be satisfied pursuant to the provisions of the HMP. The proposed mitigation for impacts to Habitat Groups A, B, and C in the coastal zone is subject to review by the California Coastal Commission. <p>5. On- or off-site creation, restoration, and/or enhancement mitigation for habitat groups A, B, and C shall consist of the following:</p> <ul style="list-style-type: none"> a. For Habitat Group A types, including riparian and wetland sensitive natural communities (e.g., riparian forest, riparian woodland, riparian scrub, disturbed wetlands, coast live oak woodland), the City or CMWD shall prepare a Riparian/Wetland Habitat Restoration Plan detailing the specific riparian/wetland creation, restoration, and/or enhancement measures to be implemented as project mitigation. The Riparian/Wetland Habitat Restoration Plan shall be approved by the USFWS, USACE, RWQCB, and/or CDFG, as appropriate, prior to vegetation clearing, grading, and/or construction activities. 	

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation				
			<p>b. For Habitat Group B types, including upland sensitive natural communities (e.g., maritime succulent scrub, southern maritime chaparral, native grassland), the City or CMWD shall prepare an Upland Habitat Restoration Plan detailing the specific upland habitat creation, restoration, and/or enhancement measures to be implemented as project mitigation. The Upland Habitat Restoration Plan shall be approved by the USFWS and CDFG prior to vegetation clearing, grading, and/or construction activities.</p> <p>c. For Habitat Group C types (occupied Coastal Sage Scrub), the City or CMWD shall prepare a Coastal Sage Scrub Habitat Restoration Plan detailing the specific coastal sage scrub habitat creation, restoration, and/or enhancement measures to be implemented as project mitigation. The Coastal Sage Scrub Habitat Restoration Plan shall be approved by the USFWS and CDFG prior to vegetation clearing, grading, and/or construction activities.</p> <p>d. The restoration plans for Habitat Groups A, B, and C shall include a five-year maintenance and monitoring program with a requirement to meet City/Wildlife Agencies approved success criteria.</p> <p>6. Any upland or riparian/wetland habitat impacts that occur beyond the approved work limits of any CIP project shall be mitigated at a higher ratio to be negotiated with the USFWS, USACE, RWQCB, and/or CDFG.</p> <p>7. If the Quarry Creek Master Plan project covering CIP projects N-9, 55, and ES7 is ultimately approved and developed, the City and CMWD shall implement the specific mitigation requirements of the Quarry Creek Master Plan EIR (EIR 11-02) accordingly.</p> <p>Bio-2B Habitat Compensation for Projects Outside of Carlsbad. If it is demonstrated through the implementation of mitigation measure Bio-1A that CIP project 47 could directly impact sensitive natural communities, namely Diegan coastal sage scrub, CMWD shall compensate the loss of habitat according to the ratios provided below, which would be increased or decreased depending on where the compensatory mitigation would be located and whether the impacted habitat supports special status species or other sensitive resources:</p> <table><tr><td><u>Sensitive Natural Community</u></td><td><u>Mitigation Ratio</u></td></tr><tr><td>Diegan coastal sage scrub</td><td>1:1 – 2:1</td></tr></table> <p>CMWD shall mitigate impacts to Diegan coastal sage scrub in accordance with the compensatory requirements outlined for Habitat Group C within measures 4, 5, 6, and 7 of mitigation measure Bio-2A.</p>	<u>Sensitive Natural Community</u>	<u>Mitigation Ratio</u>	Diegan coastal sage scrub	1:1 – 2:1	
<u>Sensitive Natural Community</u>	<u>Mitigation Ratio</u>							
Diegan coastal sage scrub	1:1 – 2:1							

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Wetlands	Implementation of Master Plans could result in impacts to waters, wetlands, and associated resources subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Game, including federally protected wetlands as defined by Section 404 of the Clean Water Act.	PS	HMP Covered Species Surveys and Habitat Mitigation (Bio-1B); Pre-Construction Biological Resource Surveys (Bio-1E); Orange Construction Fencing (Bio-1F); Construction Staging Areas (Bio-1H); Contractor Training (Bio-1I); and, Habitat Compensation for Projects within Carlsbad (Bio-2A)	LS
Wildlife Corridors	Implementation of the Master Plans would not result in adverse effects to wildlife corridors.	LS	No mitigation is required.	LS
Local Policies or Ordinances	Implementation of the Master Plans would not conflict with the City of Carlsbad Habitat Preservation and Management Requirements Ordinance or Coastal Resource Protection Overlay Zone Ordinance.	LS	No mitigation is required.	LS
Habitat Conservation Plans	Implementation of the Sewer, Water, and Recycled Water Master Plans could conflict with the Carlsbad HMP.	LS	No mitigation is required.	LS
4.4 Cultural and Paleontological Resources				
Historic and Archaeological Resources	Construction activities associated with the proposed CIP projects, such as grading, trenching, and clearing have the potential to adversely affect archeological resources within the project area.	PS	<p>Cul-1 Cultural Resources Investigation. For the CIP projects proposed in close proximity to a known cultural resource or projects that would result in ground-disturbing activities in a previously undisturbed area (Sewer CIP Projects SR-9, SR-12, SR-14, SR-19, SR-22, SR-23, N-3, and N-9; Water CIP Projects 10, 17, 47, 48, and 55; and Recycled Water Project ES7), a project-level cultural resources investigation shall be conducted by a qualified cultural resource professional who minimally meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology. The cultural resources investigation shall include:</p> <p><u>1.</u> A CIP project site-specific review of the records search data at the South Coastal Information Center shall be conducted to determine if the CIP project site has been subjected to a professional survey.</p>	LS

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p><u>a.</u> If a current cultural resources report addressing potential impacts on cultural resources is available, the City or CMWD shall implement the mitigation measures provided within the report. In the event that a current and valid report is not available or if the entirety of the CIP project site has not been professionally surveyed, then an updated records search shall be performed.</p> <p><u>b.</u> The City or CMWD shall contact the NAHC and local tribal governments for input on the project in order to identify any additional Native American resources that may not be included in the records search.</p> <p><u>2.</u> For those CIP project site(s) not addressed by a current cultural resources report (<u>produced within five years of project proposal</u>), a project-level Phase I Cultural Resources Survey shall be prepared. Updates for all resources encountered during the Phase I survey shall be recorded using Department of Parks and Recreation (DPR) 523 forms in accordance with all applicable regulations. Resources shall be evaluated for significance and eligibility for inclusion in all applicable historic registers using methods such as, but not limited to, subsurface testing and/or archival research. <u>Any subsurface testing would be monitored by an appropriate Native American representative.</u> The City or CMWD shall contact the NAHC and local tribal governments for input on the project in order to identify any additional Native American resources that may not be included in the records search.</p> <p><u>3.</u> In the event that such resources are found to be historical resources pursuant to CEQA, potential adverse impacts must be analyzed as stated in PRC Sections 21084.1 and 21083.2(l). Suitable mitigation for significant effects on archaeological resources are outlined in Section 15126.4(b)(3). The City or CMWD shall be responsible for implementing the methods for eliminating or substantially reducing impacts on resources as recommended by the archeologist and for <u>in consultation with the</u> Native American Tribe. Such methods could include, but are not limited to:</p> <ul style="list-style-type: none"> a. Planning construction to avoid archaeological sites; b. Incorporation of sites within parks, greenspace, or other open space; c. Capping or covering a site with a layer of soil before building on the site; d. Deeding the site into a permanent conservation easement; e. Excavation (Data Recovery) of archaeological resources; and/or f. Construction monitoring by a qualified professional and, if necessary, appropriate Native American monitors as identified through <u>consultation with the information-scoping process and/or by the NAHC or Native American Tribe. The monitor(s) shall be present at all pre-construction meetings.</u> 	

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>4. <u>If, as a result of Cul 1(3), it is determined that a CIP project site requires monitoring by a Native American Tribe, then the City or CMWD shall enter into a Pre-Excavation Agreement or Cultural Resource Treatment and Monitoring Agreement with the appropriate Native American Tribe prior to the commencement of earth disturbing activities.</u></p> <p>5. <u>If excavation (Data Recovery) is recommended as a result of Cul-1(3), all excavated Native American artifacts shall be repatriated to the Native American Tribe of Most Likely Descendant (MLD) rather than curated.</u></p> <p>6. The results of the cultural resources investigation shall be compiled into a technical report or memorandum and submitted to the City or CMWD and the South Coastal Information Center.</p>	
Human Remains	Compliance with PRC §5097.98 and California State Health and Safety Code 7050.5 would ensure less than significant impacts to any human remains inadvertently discovered during CIP project construction.	LS	No mitigation is required.	LS
Paleontology	Construction activities associated with the proposed CIP projects within the Santiago formation have the potential to disturb or destroy paleontological resources.	PS	<p>Pal-1 Paleontological Resources Investigation. For the proposed CIP projects (Sewer CIP Projects N-9, N-12, SR-14, SR-22, SR-23, and I-1; and Water CIP Projects 10, 17, 48, and F3) which are located within the Santiago formation, a project-level paleontological resources investigation shall be conducted by a qualified professional paleontologist in cooperation with the County of San Diego and the San Diego Natural History Museum. The paleontological resources investigation shall include:</p> <ol style="list-style-type: none"> 1. A review of the records search data for the City and CMWD service area and, if necessary, an updated records search; 2. Project-level pedestrian surveys of portions of the proposed CIP sites where paleontological resources could be encountered based on presence and depth of the sensitive formations; 3. Formal evaluation of any potentially affected paleontological resources to determine whether they qualify as unique paleontological resources; and 4. Recommended measures to avoid, where feasible, impacts on unique paleontological resources, such as preservation in place, planning construction to avoid unique paleontologic sites, placing paleontological sites into permanent conservation easements, or planning parks, green space, or other open space to incorporate paleontological sites. Where avoidance or preservation in place is not feasible, excavation and curation may be recommended as mitigation. 	

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			5. The results of the paleontological resources investigation shall be compiled into a technical report or memorandum and submitted to the City or CMWD for further coordination with the San Diego Natural History Museum, as necessary.	
4.5 Energy				
Energy Consumption	The construction and operation of CIP projects under the Master Plans would not result in the inefficient, wasteful or unnecessary use of energy.	LS	No mitigation is required.	LS
4.6 Geology and Soils				
Exposure to Seismic and Geologic Hazards	The proposed CIP facilities would not expose people or structures to damage from earthquakes, seismic groundshaking, liquefaction, lateral spreading, subsidence, expansive soils, and/or landslides.	LS	No mitigation is required.	LS
Soil Erosion or Topsoil Loss	Construction of the proposed CIP projects within the Master Plans would not result in soil erosion or loss of topsoil.	LS	No mitigation is required.	LS
Septic Systems	Implementation of the proposed CIP projects would not require the use of septic systems.	LS	No mitigation is required.	LS
4.7 Greenhouse Gas Emissions				
Direct and Indirect Generation of GHG and Consistency with Applicable Plans Adopted for Reducing GHG	Construction and operation of the proposed CIP projects would not result in a net increase of GHG emissions that would conflict with the applicable plan adopted for the purpose of reducing emissions of GHG.	LS	No mitigation is required.	LS
4.8 Hazards and Hazardous Materials				
Transport, Use, and Disposal of Hazardous Materials and Accidental Releases	Implementation of the Master Plans would comply with applicable regulations, such as RCRA, EPCRA and CalARP, related to hazardous materials use and handling.	LS	No mitigation is required.	LS
Listed Hazardous Materials Sites	A site-specific hazardous materials record search conducted prior to individual CIP project construction would prevent activities from creating a significant hazard to the public or environment.	LS	No mitigation is required.	LS

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Emergency Response and Evacuation Plans	The Master Plans would implement a traffic control plan that would prevent interference with an adopted emergency response plan or evacuation plan.	LS	No mitigation is required.	LS
Aircraft Hazards	The Master Plans would not result in safety hazard related to air traffic.	LS	No mitigation is required.	LS
Wildland Fires	The Master Plans would not expose structures or people to a significant loss involving wildland fires.	LS	No mitigation is required.	LS
4.9 Hydrology and Water Quality				
Water Quality	Compliance with the existing regulations would ensure that construction and operation of the CIP projects would not result in a violation of water quality standards or the degradation of water quality.	LS	No mitigation is required.	LS
Alteration of Drainage Patterns	Construction and operation of CIP projects would not result in the alteration in drainage patterns, increased polluted runoff, flooding or an exceedence in the capacity of a storm water drainage facility.	LS	No mitigation is required.	LS
Mudflows, Dam Inundation, Tsunamis and Seiches	The CIP projects would not be exposed to significant risks related to mudflows, dam inundations, tsunamis, or seiches.	LS	No mitigation is required.	LS
Flood Hazard Areas	The Master Plans do not propose housing in a flood hazard area.	LS	No mitigation is required.	LS
Groundwater	Construction and operation of CIP projects would not substantially degrade groundwater quality or interfere substantially with groundwater supplies or recharge.	LS	No mitigation is required.	LS
4.10 Land Use and Planning				
Land Use Incompatibilities and Conflicts with Land Use Plans and Biological Conservation Plans	The CIP Projects would not result in land use incompatibilities or conflicts.	LS	No mitigation is required.	LS
Physically Divide an Established Community	The CIP Projects not physically divide an established community.	LS	No mitigation is required.	LS

Table S-4 Summary of Environmental Impacts and Mitigation Measures (continued)

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
4.11 Noise				
Substantial Permanent Increases in Ambient Noise Levels	Noise from the CIP projects would be attenuated using enclosures or other measures as necessary to comply with applicable noise ordinances.	LS	No mitigation is required.	LS
Temporary Increases in Ambient Noise	Construction of CIP projects would not substantially increase ambient noise levels in the project vicinity.	LS	No mitigation is required.	LS
Excessive Groundborne Vibration or Noise	Construction of CIP projects would not result in excessive groundborne vibration and noise.	LS	No mitigation is required.	LS
Aircraft Noise	Implementation of the Master Plans would not expose people to excessive aircraft noise.	LS	No mitigation is required.	LS
4.12 Transportation/Traffic				
Traffic and LOS Standards	Implementation of a traffic control plan would ensure that construction of the proposed CIP projects would not interfere with the circulation network.	LS	No mitigation is required.	LS
Air Traffic	Implementation of the Master Plans would not result in a change in air traffic patterns.	LS	No mitigation is required.	LS
Increase in Traffic Hazards	None of the proposed CIP projects include features that would increase traffic hazards or result in incompatible uses. Further, implementation of the traffic control plan as a required CIP project feature would minimize traffic hazards during construction.	LS	No mitigation is required.	LS
Alternative Transportation	Implementation of the Master Plans would not disrupt alternative modes of transportation during construction or operation of the proposed CIP projects.	LS	No mitigation is required.	LS
Emergency Access	Implementation of the Master Plans would not disrupt emergency access during construction or operation.	LS	No mitigation is required.	LS

S = Significant; LS = Less than significant; PS = Potentially significant

Table S-5 Cumulative Impacts and Mitigation Measures

Issue	Geographic Scope of Cumulative Impact Analysis	Significant Cumulative Impact?	Project Contribution
4.1 Aesthetics			
Local degradation of visual character.	The geographic context for the analysis of cumulative impacts to visual character encompasses the public viewsheds from which above-ground CIP projects would be visible.	Yes	Not cumulatively considerable.
Local degradation of scenic vistas.	The geographic context for the analysis of cumulative impacts to scenic vistas encompasses the public viewsheds from which above-ground CIP projects and access roads would be visible.	Yes	Not cumulatively considerable.
Scenic Resources	The geographic context for the analysis of cumulative impacts to scenic resources encompasses the public viewsheds of scenic resources from which above-ground CIP projects and access roads would be visible.	Yes	Not cumulatively considerable.
Regional light pollution.	The geographic context for the analysis of cumulative impacts relative to night lighting encompasses the urban areas within the sewer, water, and recycled water service areas (Carlsbad, San Marcos, Oceanside, and Vista).	Yes	Not cumulatively considerable.
4.2 Air Quality			
Consistency with applicable air quality plan.	The geographic context for air quality impacts is the San Diego Air Basin.	No	No cumulative impact.
Compliance with air quality standards.	The geographic context for air quality impacts is the San Diego Air Basin.	Yes	Not cumulatively considerable.
Sensitive Receptors	The geographic context for the analysis of cumulative impacts relative to sensitive receptors is the sewer, water, and recycled water services areas.	Yes	Not cumulatively considerable.
Objectionable Odors	Impacts relative to objectionable odors are limited to the area immediately surrounding the odor source.	No	No cumulative impact.
4.3 Biological Resources			
Candidate, Sensitive, or Special Status Species	The geographic scope of cumulative impact analysis for biological resources includes the sewer, water, and recycled water areas, which encompasses a large region of Northern San Diego County and represents a wide variety of habitat types and sensitive biological resources, including a comprehensive list of species of regional concern. With the exception of a single project, all CIP projects potentially affecting biological resources occur within Carlsbad; therefore, an appropriate geographic scope for the cumulative impact analysis would encompass areas contained within the planning boundaries for the Carlsbad HMP. For federally listed species whose critical habitat occurs within the CMWD service area (e.g., coastal California gnatcatcher), the geographic scope would include all contiguous critical habitat units that extend beyond the boundaries of the city.	Yes	Not cumulatively considerable.

Table S-5 Cumulative Impacts and Mitigation Measures (continued)

Issue	Geographic Scope of Cumulative Impact Analysis	Significant Cumulative Impact?	Project Contribution
Riparian Habitat and Sensitive Natural Communities	The geographic scope of cumulative impact analysis for biological resources includes the sewer, water, and recycled water areas, which encompasses a large region of Northern San Diego County and represents a wide variety of habitat types and sensitive biological resources, including a comprehensive list of species of regional concern. With the exception of a single project, all CIP projects potentially affecting biological resources occur within Carlsbad; therefore, an appropriate geographic scope for the cumulative impact analysis would encompass areas contained within the planning boundaries for the Carlsbad HMP. For federally listed species whose critical habitat occurs within the CMWD service area (e.g., coastal California gnatcatcher), the geographic scope would include all contiguous critical habitat units that extend beyond the boundaries of the city.	Yes	Not cumulatively considerable.
Wetlands	The geographic scope of cumulative impact analysis for biological resources includes the sewer, water, and recycled water areas, which encompasses a large region of Northern San Diego County and represents a wide variety of habitat types and sensitive biological resources, including a comprehensive list of species of regional concern. With the exception of a single project, all CIP projects potentially affecting biological resources occur within Carlsbad; therefore, an appropriate geographic scope for the cumulative impact analysis would encompass areas contained within the planning boundaries for the Carlsbad HMP. For federally listed species whose critical habitat occurs within the CMWD service area (e.g., coastal California gnatcatcher), the geographic scope would include all contiguous critical habitat units that extend beyond the boundaries of the city.	Yes	Not cumulatively considerable.
Wildlife Corridors	The geographic scope of cumulative impact analysis for biological resources includes the sewer, water, and recycled water areas, which encompasses a large region of Northern San Diego County and represents a wide variety of habitat types and sensitive biological resources, including a comprehensive list of species of regional concern. With the exception of a single project, all CIP projects potentially affecting biological resources occur within Carlsbad; therefore, an appropriate geographic scope for the cumulative impact analysis would encompass areas contained within the planning boundaries for the Carlsbad HMP. For federally listed species whose critical habitat occurs within the CMWD service area (e.g., coastal California gnatcatcher), the geographic scope would include all contiguous critical habitat units that extend beyond the boundaries of the city.	Yes	Not cumulatively considerable.

Table S-5 Cumulative Impacts and Mitigation Measures (continued)

Issue	Geographic Scope of Cumulative Impact Analysis	Significant Cumulative Impact?	Project Contribution
Local Policies and Ordinances	The geographic scope of cumulative impact analysis for biological resources includes the sewer, water, and recycled water areas, which encompasses a large region of Northern San Diego County and represents a wide variety of habitat types and sensitive biological resources, including a comprehensive list of species of regional concern. With the exception of a single project, all CIP projects potentially affecting biological resources occur within Carlsbad; therefore, an appropriate geographic scope for the cumulative impact analysis would encompass areas contained within the planning boundaries for the Carlsbad HMP. For federally listed species whose critical habitat occurs within the CMWD service area (e.g., coastal California gnatcatcher), the geographic scope would include all contiguous critical habitat units that extend beyond the boundaries of the city.	Yes	Not cumulatively considerable.
Habitat Conservation Plans	The geographic scope of cumulative impact analysis for biological resources includes the sewer, water, and recycled water areas, which encompasses a large region of Northern San Diego County and represents a wide variety of habitat types and sensitive biological resources, including a comprehensive list of species of regional concern. With the exception of a single project, all CIP projects potentially affecting biological resources occur within Carlsbad; therefore, an appropriate geographic scope for the cumulative impact analysis would encompass areas contained within the planning boundaries for the Carlsbad HMP. For federally listed species whose critical habitat occurs within the CMWD service area (e.g., coastal California gnatcatcher), the geographic scope would include all contiguous critical habitat units that extend beyond the boundaries of the city.	Yes	Not cumulatively considerable.
4.4 Cultural and Paleontological Resources			
Regional loss of historic and archaeological resources.	The geographic context for the analysis of cumulative impacts to archaeological and historic resources includes the sewer, water, and recycled water service areas, which includes approximately 40-square miles of land with a similar archaeological, ethnohistoric, and historic setting as the individual CIP project sites.	Yes	Not cumulatively considerable with implementation of Cul-1.
Regional loss of human remains.	The geographic context for the analysis of cumulative impacts to human remains includes the sewer, water, and recycled water service areas, which includes approximately 40-square miles of land with a similar archaeological, ethnohistoric, and historic setting as the individual CIP project sites	No	No cumulative impact.
Regional loss of paleontological resources.	The geographic context for the analysis of cumulative impacts to paleontological resources encompasses the paleontologically sensitive geologic formations within the sewer, water, and recycled water service areas.	Yes	Not cumulatively considerable with implementation of Pal-1.

Table S-5 Cumulative Impacts and Mitigation Measures (continued)

Issue	Geographic Scope of Cumulative Impact Analysis	Significant Cumulative Impact?	Project Contribution
4.5 Energy			
Energy Consumption	The City sewer and CMWD water and recycled water service areas are the geographic scope of cumulative for energy.	No	No cumulative impact.
4.6 Geology and Soils			
Exposure to seismic and geologic hazards	Local events such as ground shaking, fault rupture, ground failure, subsidence, lateral spreading, liquefaction, and landslides can be directly caused by wide-spread seismic events they are not considered to be cumulative.	No	No cumulative impact.
Localized soil erosion or loss or loss of topsoil affected watersheds due to development.	The geographic context for the analysis of cumulative impacts relative to soil erosion encompasses the Carlsbad and San Luis Rey watersheds directly downstream from the proposed CIP construction sites.	Yes	Not cumulatively considerable.
Septic systems	Impacts related to septic systems are site specific and not cumulative in nature.	No	No cumulative impact.
4.7 Greenhouse Gas Emissions			
Net increase of GHG emissions that would exceed the screening thresholds.	Due to the nature of assessment of greenhouse gas emissions and the effects of climate change, impacts can currently only be analyzed from a cumulative context. Therefore, the geographic scope for the cumulative analysis of global climate change is the global atmosphere for greenhouse gas emissions.	Yes	Not cumulatively considerable.
4.8 Hazards and Hazardous Materials			
Transport, use, and disposal of hazardous materials and accidental releases into the environment and near schools.	The geographic context for the analysis of cumulative impacts relative to the transport, use and disposal of hazardous materials, and associated accidental releases, encompasses the roadways and freeways used by vehicles transporting hazardous materials to and from the CIP construction sites, and the CIP project sites that involve the use of hazardous materials.	No	Not cumulatively considerable.
Listed Hazardous Materials Sites	Impacts related to listed hazardous materials sites are generally specific and limited to the area directly adjacent to the hazardous materials site.	No	Not cumulatively considerable.
Emergency Response and Evacuation Plans	The geographic context for the analysis of cumulative impacts relative to emergency response and evacuation plans is the sewer, water, and recycled water service areas.	Yes	Not cumulatively considerable.
Aircraft Hazards	Impacts related to aircraft hazards are generally site specific and limited to the area within two miles of a specific airport.	No	Not cumulatively considerable.
Increased exposure to wildland fire hazards.	The geographic context for the analysis of cumulative impacts relative to wildland fires is the sewer, water, and recycled water service areas.	Yes	Not cumulatively considerable.

Table S-5 Cumulative Impacts and Mitigation Measures (continued)

Issue	Geographic Scope of Cumulative Impact Analysis	Significant Cumulative Impact?	Project Contribution
4.9 Hydrology and Water Quality			
Regional increase in pollutant sources that could adversely affect water quality standards.	The geographic context for the analysis of cumulative impacts relative to water quality standards encompasses the portions of the Carlsbad watershed directly downstream from the CIP project locations.	Yes	Not cumulatively considerable.
Regional impacts to alteration of localized drainage patterns that can result in increased polluted runoff, flooding, and exceedance of capacity of storm water drainage facilities due to alteration of localized drainage patterns.	The geographic context for the analysis of various cumulative water quality and hydrological impacts relative to localized alteration of drainage patterns encompasses the portions of Carlsbad watershed directly downstream from the proposed CIP projects.	Yes	Not cumulatively considerable.
Exposure to mudflows, Dam Inundation, Tsunamis and Seiches	Impacts relative to mudflows, dam inundation, tsunamis, and seiches, are generally specific to a project site.	No	Not cumulatively considerable.
Exposure to flood hazard areas.	Impacts relative to flood hazards are generally specific to a project site.	No	Not cumulatively considerable.
Regional impacts to groundwater use that would substantially degrade groundwater quality or interfere with supplies and recharge.	The geographic context for the analysis of various cumulative water quality and hydrological impacts relative to localized alteration of drainage patterns encompasses the San Luis Rey River groundwater basin.	Yes.	Not cumulatively considerable.
4.10 Land Use			
Incompatibilities with adjacent land uses.	The geographic context for the analysis of cumulative impacts relative to adjacent land use incompatibilities includes development surrounding the proposed CIP facilities.	No	No cumulative impact.
Physical division of established communities.	The geographic context for the analysis of cumulative impacts relative to physical division of an established community is generally site specific and limited to the area directly adjacent to each CIP site.	No	No cumulative impact.
4.11 Noise			
Substantial Permanent Ambient Noise Increases	The area of cumulative impact that would be considered for the noise cumulative analysis would be only those projects within the immediate vicinity of the proposed CIP locations.	No	No cumulative impact.
Temporary Increases in Ambient Noise	The area of cumulative impact that would be considered for the noise cumulative analysis would be only those projects within the immediate vicinity of the proposed CIP locations.	No	No cumulative impact.
Generation of Groundborne Vibration	The area of cumulative impact that would be considered for the vibration cumulative analysis would be only those projects within the immediate vicinity of the CIP locations.	No	No cumulative impact.

Table S-5 Cumulative Impacts and Mitigation Measures (continued)

Issue	Geographic Scope of Cumulative Impact Analysis	Significant Cumulative Impact?	Project Contribution
Exposure to Aircraft Noise	Exposure to aircraft noise is also a localized impact and the area of cumulative impact that would be considered for aircraft impacts would be only those projects located within two miles of Palomar-McClellan Airport or Oceanside Municipal Airport.	No	No cumulative impact.
4.12 Transportation/Traffic			
Decrease in level of service of transportation network.	The geographic scope of the cumulative analysis related to traffic and LOS standards consists of the sewer, water, and recycled water service areas.	Yes	Not cumulatively considerable.
Air Traffic	Impacts related to aircraft traffic are generally specific and limited to the area within two miles of a specific airport.	No	Not cumulatively considerable.
Increase in Traffic Hazards	The geographic context for the analysis of cumulative impacts relative to traffic hazards is the sewer, water, and recycled water service areas.	Yes	Not cumulatively considerable.
Decrease in level of service or safety of alternative transportation	The geographic scope of the cumulative analysis related to alternative transportation is the sewer, water, and recycled water service areas.	Yes	Not cumulatively considerable.
Emergency Access	The geographic context for the analysis of cumulative impacts relative to emergency access is the sewer, water, and recycled water service areas.	Yes	Not cumulatively considerable.

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